

**WHAT IS CLAIMED IS:**

1            2nd A17  
1        1. A method of billing service in an electronic switch in a cellular network,  
2            comprising the steps of:

3            setting a time when a service initiation request or a service resumption request is  
4            generated as a service start time and initiating a call ;

5            setting a service suspension request time as a service end time upon generation of a  
6            service suspension request during the service and suspending the service;

7            sending billing data including the service start time and the service end time in the  
8            service suspended state, and determining whether a service resumption request is generated;

9            and      *= hold time or failure time*

10          ending the service when a service termination request is generated in the service  
11          suspended state.

1            2. The billing method of claim 1, wherein the service initiation request is  
2            generated when an outgoing call is answered.

1            3. The billing method of claim 1, wherein the service initiation request is  
2            generated when an incoming call is answered.

1            4. The billing method of claim 1, wherein the service suspension signal is sent by  
2            a BSC to notify that frames are not normally transmitted.

1       5. The billing method of claim 1, wherein the service resuming signal is sent by  
2       the BSC to notify that a frame transmission resumes.

1       6. The billing method of claim 2 wherein the service termination request is  
2       generated from one of two subscribers in communication.

1       7. The billing method of claim 3, wherein the service termination request is  
2       generated from one of two subscribers in communication.

1       8. A method of billing service in an electronic switch in a cellular network,  
2       comprising the steps of:

3             calculating a service suspended period whenever a service suspension occurs during  
4             a service and accumulating service suspended periods; and

5             constructing billing data, including a final service suspended period being the  
6             accumulated value of service suspended periods and sending the billing data to a billing  
7             processor, when the service ends.

1       9. The billing method of claim 8, wherein the service suspended period is the  
2       difference between a service suspension start time and a service resuming time.

1       10. The billing method of claim 9, wherein the service suspended period is the  
2       difference between the service suspension start time and a service end time.

*JMPA3*  
1        11. A method of billing service in an electronic switch in a cellular network,  
2 comprising the steps of:

3                calculating a service suspended period whenever a service suspension occurs during  
4 a service and storing the service suspended period according to a unique index; and  
5                constructing billing data including stored service suspended periods and sending the  
6 billing data to a billing processor, when the service ends.

1        12. The billing method of claim 11, wherein the service suspended period is the  
2 difference between a service suspension start time and a service suspension end time, wherein  
3 the service suspension end time is a service resuming time.

1        13. The billing method of claim 12, wherein the service suspension end time is a  
2 service end time.

1        14. The billing method of claim 13, wherein the service suspension start time and  
2 the service suspension end time are stored according to different indexes.

1        15. The billing method of claim 11, wherein the billing data further includes the  
2 number of service suspension occurrences.

*JMPA47*  
1        16. A method of billing service in an electronic switch in a cellular network,  
2 comprising the steps of:  
3                setting a service initiation request time upon request for call initiation and initiating a  
4 call;

5           setting a service suspension request time as a service suspension start time upon  
6           request for service suspension and suspending the service;

7           setting a service resumption request time as a service suspension end time upon request  
8           for service resumption in the service suspended state, calculating a service suspended time  
9           from the service suspension start time and the service suspension end time, adding the  
10          calculated service suspended period to a previous service suspended period, and resuming the  
11          service;

12          setting a service termination request time as a service end time upon request for service  
13          termination in the service suspended state, calculating a service suspended time from the  
14          service suspension start time and the service end time, adding the calculated service suspended  
15          period to a previous service suspended period, and resuming the service; and

16          sending billing data including the service start time, the service end time and a final  
17          accumulated service suspended time to a billing processor, and ending the service.

1           17.       The billing method of claim 16, wherein the service suspension signal is sent  
2           by a BSC to notify that frames are not normally transmitted.

1           18.       The billing method of claim 16, wherein the service resuming signal is sent by  
2           the BSC to notify that a frame transmission resumes.

1           19.       The billing method of claim 16, wherein the service suspended period is the  
2           difference between the service suspension start time and the service suspension end time.

1           20. The billing method of claim 19, wherein the service suspended period is the  
2 difference between a service suspension start time and the service end time.

1           21. A method of billing service in an electronic switch in a cellular network,  
2 comprising the steps of:

3                 designating a unique index upon request for service suspension during a service, setting  
4 a service suspension request time as a service suspension start time according to the unique  
5 index, and suspending the service;

6                 designating a unique index upon request for service resumption in the service  
7 suspended state, setting a service resumption request time as a service suspension end time  
8 according to the unique index, and resuming the service;

9                 designating a unique index upon request for service termination in the service  
10 suspended state, and setting a service termination request time as a service suspension end  
11 time according to the unique index; and

12                 constructing billing data including the service suspension start time and the service  
13 suspension end time, sending the billing data to a billing processor, and ending the service.

1           22. The billing method of claim 21, wherein the billing data further includes the  
2 number of service suspension occurrences.

1           23. A billing method in an electronic switch in a cellular network, comprising the  
2 steps of:

3           counting the number of service suspension occurrences generated during a service,  
4           constructing billing data including the count value, and sending the billing data to a billing  
5           processor, via a call processor; and

6           producing a total service suspended period by multiplying the number of service  
7           suspension occurrences by an average service suspended period, subtracting the total service  
8           suspended period from an overall service period, and billing a subscriber for a resulting normal  
9           service period.

1           24. A billing method in an electronic switch, comprising the steps of:  
2           3           calculating a service suspended period during a service in progress; and  
3           4           billing a subscriber for a normal service period resulting from subtracting the  
4           5           calculated service time period from an overall service period.

1           25. The billing method of claim 24, wherein the service suspended period is the  
2           3           difference between a service suspension request time and a service resuming request time  
3           4           during a service in progress.

1           26. The billing method of claim 25, wherein the overall service period is the  
2           3           difference between a service initiation request time and a service termination request time.